

**CLAIMS:**

1. A filamentous fungus transformed with a heterologous sequence of DNA, the fungus being capable of expressing the heterologous DNA, characterised in that the heterologous DNA is under the control of a filamentous fungus transcription promoter active substantially only during stage 1, or later, of the development of the fruiting body of the fungus.
2. A fungus according to claim 1, which is *A. bisporus*.
3. A fungus according to claim 1 or 2, wherein the promoter is that of *abst1*.
4. A fungus according to claim 1 or 2, wherein the promoter is that of *rafe*.
5. A fungus according to claim 1 or 2, wherein the promoter is that of *mag2*.
6. A fungus according to claim 1 or 2, wherein the promoter comprises the sequence of SEQ ID NO 12, or a mutation or variant thereof, or a sequence which hybridises thereto under conditions of at least 60% stringency.
7. A fungus according to claim 1 or 2, wherein the promoter comprises the sequence of SEQ ID NO 13, or a mutation or variant thereof, or a sequence which hybridises thereto under conditions of at least 60% stringency.
8. A fungus according to any preceding claim, wherein the DNA is operably linked with a terminator comprising the sequence of SEQ ID NO 35, or a mutation or variant thereof, or a sequence which hybridises thereto under conditions of at least 60% stringency.
9. A fungus according to any preceding claim, wherein the DNA is operably linked with a terminator comprising the sequence of SEQ ID NO 36, or a mutation or variant thereof, or a sequence which hybridises thereto under conditions of at least 60% stringency.

10. A fungus according to claim 1, wherein the DNA is operably linked with a promoter comprising the sequence of SEQ ID NO. 12 and a terminator comprising the sequence of SEQ ID NO 35, or a mutation or variant of either, or a sequence which hybridises thereto under conditions of at least 60% stringency.
11. A fungus according to claim 1, wherein the DNA is operably linked with a promoter comprising the sequence of SEQ ID NO. 13 and a terminator comprising the sequence of SEQ ID NO 36, or a mutation or variant of either, or a sequence which hybridises thereto under conditions of at least 60% stringency.
12. A fungus according to any preceding claim, wherein a selectable marker is linked with the heterologous DNA.
13. A fungus according to any preceding claim, wherein the heterologous DNA is native DNA.
14. A fungus according to any preceding claim, wherein the heterologous DNA is selected such as to affect characteristics of mushroom crop production.
15. A fungus according to any preceding claim, wherein the heterologous DNA encodes: antibodies, including other diagnostic material; secondary metabolites, such as lectins, pesticidal compounds such as *Bacillus thuringiensis* toxin (Bt toxin); therapeutic compounds such as vaccines, steroids, heterocyclic organic compounds; biological macromolecules, such as interferon, endostatin and insulin; and medical enzymes, such as thrombolytics and cerebrosidases.
16. A method for the production of a substance expressible by a DNA sequence, wherein the sequence is operably associated with a filamentous fungus transcription promoter active substantially only during stage 1, or later, of the development of the fruiting body of the fungus, the sequence and promoter being expressibly incorporated in a filamentous fungus, the fungus being cultured to fruition and the product being harvested.

17. A method for the production of a substance expressible by a DNA sequence, wherein the sequence is operably associated with a filamentous fungus transcription promoter active substantially only during stage 1, or later, of the development of the fruiting body of the fungus, the sequence and promoter being expressibly incorporated in a filamentous fungus, the fungus being cultured to fruition and the product being harvested, and wherein the DNA and/or fungus is as defined in any of claims 1 to 15.